

THE INVENTION CLAIMED IS:

1. A wound management system comprising:

a multi-lumen cannula adapted to be disposed in a wound site and having:

- 5 a fiber optic light distribution system adapted to irradiate the wound site with light;
- one or more catheters adapted to deliver a fluid to the wound site; and
- one or more evacuation lines adapted to remove
- 10 fluid from the wound site;
- a light source coupled to the fiber optic light distribution system, and adapted to supply light to the fiber optic light distribution system;
- one or more fluid supplies coupled to the one or more
- 15 catheters, and adapted to supply fluid to the one or more catheters;
- a vacuum system coupled to the one or more evacuation lines, and adapted to evacuate the one or more evacuation lines; and
- 20 a controller coupled to the light source, the one or more fluid supplies and the vacuum system, and adapted to:
- employ the vacuum system to remove exudates from the wound site;
- employ the one or more catheters to deliver fluid
- 25 to the wound site; and
- employ the light source to deliver at least one light dose to the wound site.

2. The wound management system of claim 1 wherein the

30 multi-lumen cannula further comprises one or more temperature measurement devices coupled to the controller,

the one or more temperature measurement devices adapted to measure a temperature of the wound site.

3. The wound management system of claim 1 wherein the  
5 fiber optic light distribution system comprises a plurality of optical fibers within a fiber housing line.

4. The wound management system of claim 3 wherein each optical fiber has an angled fiber/air interface.

10

5. The wound management system of claim 3 wherein at least one of the one or more catheters and the fiber housing line are positioned side-by-side within at least one of the one or more evacuation lines.

15

6. The wound management system of claim 3 wherein at least one of the one or more catheters and the fiber housing line are adapted to permit medication or saline flush of the wound site.

20

7. The wound management system of claim 1 wherein at least one of the one or more evacuation lines includes a plurality of intakes adapted to remove exudates from the wound site.

25

8. The wound management system of claim 1 wherein at least one of the one or more catheters includes a one-way valve adapted to:

allow fluid flow from the one or more fluid supplies  
30 through the at least one catheter to the wound site; and  
prevent fluid flow from the wound site back to the one or more fluid supplies through the at least one catheter.

9. The wound management system of claim 1 wherein the controller is further adapted to direct the light source to deliver a plurality of doses of light to the wound site via the fiber optic light distribution system, each light dose having a wavelength ranging from about 350 to 900 nanometers.

10. The wound management system of claim 1 wherein the controller is further adapted to direct the one or more fluid supplies to deliver at least one of oxygen, nitric oxide and carbon dioxide to the one or more catheters.

11. The wound management system of claim 1 wherein the controller is further adapted to:

regulate temperature of fluids supplied to the wound site;

produce short transient changes in pressure to remove exudates from the wound site; and

provide dosed injections of fluids into the wound site.

12. The wound management system of claim 1 wherein at least one of the one or more evacuation lines and at least one of the one or more catheters are concentric.

13. The wound management system of claim 1 wherein at least one of the one or more catheters and at least one of the one or more evacuation lines are coupled side-by-side.

14. The wound management system of claim 13 further comprising a fiber housing line coupled side-by-side to the

at least one of the one or more catheters and the at least one of the one or more evacuation lines.

15. The wound management system of claim 1 wherein the one  
5 or more fluid supplies are adapted to deliver at least one of a medication or saline flush to the wound site.

16. The wound management system of claim 15 wherein the  
controller is further adapted to initialize the medication  
10 or saline flush.

17. The wound management system of claim 1 wherein the  
controller is further adapted to maintain a hyperbaric  
pressure at the wound site.

15

18. A wound management system comprising:

one or more catheters adapted to deliver a fluid to a  
wound site;

one or more evacuation lines adapted to remove fluid  
20 from the wound site;

one or more fluid supplies coupled to the one or more  
catheters, and adapted to supply fluid to the one or more  
catheters;

a vacuum system coupled to the one or more evacuation  
25 lines, and adapted to evacuate the one or more evacuation  
lines; and

a controller coupled to the one or more fluid supplies  
and the vacuum system, and adapted to:

employ the vacuum system to remove exudates from  
30 the wound site; and

employ the one or more catheters to deliver fluid  
to the wound site.

19. The wound management system of claim 18 further comprising a pressure regulation system coupled to at least one of the one or more catheters, and adapted to provide at least one of a controlled pressure and flow rate of fluid to the wound site.

20. The wound management system of claim 18 further comprising:

a light distribution system adapted to deliver one or more light doses to the wound site;

wherein the controller is coupled to the light distribution system, and further adapted to control operation of the light distribution system.

21. A wound management system comprising:

a multi-lumen cannula adapted to be disposed in a wound site and having:

a fiber optic light distribution system adapted to irradiate the wound site with light;

one or more catheters adapted to deliver a fluid to the wound site; and

one or more evacuation lines adapted to remove fluid from the wound site.

22. The wound management system of claim 21 wherein the fiber optic light distribution system comprises a plurality of optical fibers within a fiber housing line.

23. The wound management system of claim 22 wherein each optical fiber has an angled fiber/air interface.

24. A method of treating a wound site comprising:

providing a multi-lumen cannula having:

a fiber optic light distribution system adapted  
to irradiate the wound site with light;

5 one or more catheters adapted to deliver a fluid  
to the wound site; and

one or more evacuation lines adapted to remove  
fluid from the wound site;

disposing the multi-lumen cannula in the wound site;

10 and

treating the wound site using the multi-lumen cannula.

25. The method of claim 24 wherein treating the wound site  
comprises maintaining a hyperbaric pressure at the wound

15 site.

26. The method of claim 24 wherein treating the wound site  
comprises delivering at least one of medication and a  
saline flush to the wound site.

20

27. The method of claim 24 wherein treating the wound site  
comprises removing exudates from the wound site.

28. The method of claim 24 wherein the treating the wound  
25 site comprises delivering a dose of light to the wound site  
having a wavelength ranging from about 350 to 900  
nanometers.

29. The method of claim 24 wherein treating the wound site  
30 comprises heating the wound site.